Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.   (Currently Amended) A template matching method of detecting the position of an image region similar to a template image region from on a reference image, ~~characterized by~~ comprising:

calculating the similarity of the image region to the template image region at rough position intervals;

estimating the similarity at a position, where the similarity is not calculated, making use of the directional gradients of similarity obtained independently in a plurality of directions from the calculated values of similarity; and

determining the position having a small calculated or estimated value of the similarity as the position of the similar image region.

2.   (Currently Amended) A template matching method according to claim 1, wherein ~~characterized by~~ estimating the similarity ~~making~~ makes use of the similarity estimated up to that time in addition to the calculated values of similarity.

3.   (Currently Amended) A template matching method of narrowing down the position of a similar image region stepwise based on a multistep search method, ~~characterized by~~ comprising detecting the position of the similar image region by the template matching method according to claim 1 [[or 2]] at a search step before the final step thereof.

4.   (Currently Amended) A template matching method according to claim 1 [[or 2,]] further comprising ~~characterized by~~ restricting the value range of the estimated similarity value such that the difference between the estimated similarity value and the similarity of a periphery used for the estimation or the gradient of the similarity does not exceed a threshold value.

5.   (Currently Amended) A template matching method according to claim 4, further comprising ~~characterized by~~ determining the threshold value based on the magnitude of the similarity calculated from the template image region and an image region, which is

obtained by moving the template image region in the same direction as or in the opposite direction to an estimation direction vector obtained by subtracting the position of the nearby image region from the position where the similarity is estimated.

6.   (Currently Amended) A template matching method according to ~~any one of claims 1 to 5~~, claim 1 further comprising ~~characterized by~~ estimating, when five reference image regions A, B, C, D, E are sequentially located on a straight line, the degree of similarity at the position C from an interpolation value extrapolated assuming gradient continuity from the similarity in the image regions A, B and from an interpolation value extrapolated assuming gradient continuity from the similarity in the image regions D, E in the estimation of the degree of similarity.

7.   (Currently Amended) A template matching apparatus for detecting the position of an image region similar to a template image region from on a reference image, ~~characterized by~~ comprising:

means for calculating the similarity of the image region to the template image region at rough position intervals;

means for estimating the similarity at a position, where the similarity is not calculated, making use of the gradients of the similarity obtained independently in a plurality of directions from the calculated values of similarity; and

means for determining the position having a small calculated or estimated value of the similarity as the position of the similar image region.

8.   (Currently Amended) A template matching apparatus according to claim 7, ~~characterized by~~ further comprising means for estimating the degree of similarity making use of the similarity estimated up to that time in addition to the calculated values of similarity.

9.   (Currently Amended) A template matching apparatus for narrowing down the position of a similar image region stepwise based on a multistep search method, ~~characterized by~~ further comprising detecting the position of the similar image region by the template matching apparatus according to claim 7 [[or 8]] at a search step before the final step thereof.

10.   (Currently Amended) A template matching apparatus according to claim 7 [[or 8]], ~~characterized by~~ <u>further</u> comprising means for restricting the value range of the estimated similarity value such that the difference between the estimated similarity value and the similarity of a periphery used for the estimation or the gradient of the similarity does not exceed a threshold value.

11.   (Currently Amended) A template matching method according to claim 10, <u>further</u> ~~characterized by~~ comprising means for determining the threshold value based on the magnitude of the similarity calculated from the template image region and an image region, which is obtained by moving the template image region in the same direction as or in the opposite direction to an estimation direction vector obtained by subtracting the position of the nearby image region from the position where the degree of similarity is estimated.

12.   (Currently Amended) A template matching method according to ~~any one of claims 7 to 11, characterized by~~ <u>claim 7 further</u> comprising means for estimating, when five reference image regions A, B, C, D, E are sequentially located on a straight line, the degree of similarity at the position C from an interpolation value extrapolated assuming gradient continuity from the similarity in the image regions A, B and from an interpolation value extrapolated assuming gradient continuity from the similarity in the image regions D, E in the estimation of the degree of similarity.

13.   (Currently Amended) A computer readable recording medium that records a program for causing a computer to execute a template matching method of detecting the position of an image region similar to a template image region from on a reference image, <u>wherein</u> ~~characterized in that~~:

the method calculates the similarity of the image region to the template image region at rough position intervals;

the method estimates the similarity at a position, where the similarity is not calculated, making use of the gradients of similarity obtained independently in a plurality of directions from the calculated values of similarity; and

the method determines the position having a small calculated or estimated value of the similarity as the position of the similar image region.

14.   (Currently Amended) A recording medium according to claim 13, <u>wherein</u> ~~characterized in that~~ the degree of similarity is estimated making use of a similarity estimated up to that time in addition to the calculated values of similarity.

15.   (Currently Amended) A computer readable recording medium that records a program for causing a computer to execute a template matching method of narrowing down the position of a similar image region stepwise based on a multistep search method, characterized in that the template matching method detects the position of the similar image region by being executed by a computer based on a program recorded on the recording medium according to claim 13 [[or 14]] at a search step before the final step thereof.

16.   (Currently Amended) A recording medium according to claim 13 [[or 14]], <u>wherein</u> ~~characterized in that~~ the method restricts the value range of the estimated similarity value such that the difference between the estimated similarity value and the similarity of a periphery used for the estimation or the gradient of the similarity does not exceed a threshold value.

17.   (Currently Amended) A recording medium according to claim 16, <u>wherein</u> ~~characterized in that~~ the method determines the threshold value based on the magnitude of the similarity calculated from the template image region and an image region, which is obtained by moving the template image region in the same direction as or in the opposite direction to an estimation direction vector obtained by subtracting the position of the nearby image region from the position where the degree of similarity is estimated.

18.   (Currently Amended) A recording medium according to <u>claim 13</u> ~~any of claims 13 to 17~~, <u>wherein</u> ~~characterized in that~~ the method estimates, when five reference image regions A, B, C, D, E are sequentially located on a straight line, the degree of similarity at the position C from an interpolation value extrapolated assuming gradient continuity from the similarity in the image regions A, B and from an interpolation value extrapolated assuming gradient continuity from the similarity in the image regions D, E in the estimation of the degree of similarity.